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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/540,540

09/11/2006

Norio Hirayama

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9629 7590 05/17/2010  
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EXAMINER

FEELY, MICHAEL J

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

05/17/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/540,540	<b>Applicant(s)</b> HIRAYAMA ET AL.	
	<b>Examiner</b> Michael J. Feely	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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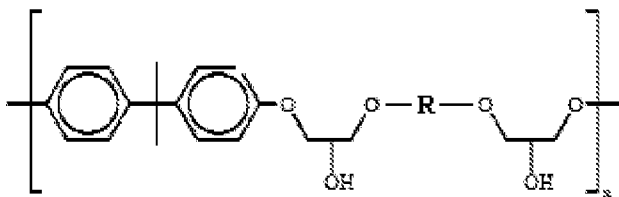
**DETAILED ACTION*****Pending Claims***

Claims 1-5 and 17 are pending.

***Election/Restrictions***

1. Applicant's election of *species (Type 1a)* in the reply filed on February 25, 2010 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). The elected species is drawn to the following method:

- (Type 1a) the method as claimed featuring a poly-addition polymerization reaction between a bi-functional compound having two epoxy groups and a bi-functional ***phenolic*** compound having two ***hydroxy*** groups, yielding a thermoplastic with the following repeat unit:

***Response to Amendment***

***(As Discussed in the Previous Office Action)***

2. The objection to claims 4, 5, and 17 under 37 CFR 1.75(c) has been overcome by amendment.

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3. The objection to claims 6-16 under 37 CFR 1.75(c) has been rendered moot by the cancellation of these claims.
4. The rejection of claims 1-3 under 35 U.S.C. 102(b) as being anticipated by Edwards et al. (US Pat. No. 5,891,560) has been overcome by amendment.
5. The rejection of claims 1-3 under 35 U.S.C. 102(b) as being anticipated by Kaneshiro et al. (JP 10-251423) has been overcome by amendment.
6. The rejection of claims 1-3 under 35 U.S.C. 102(b) as being anticipated by Schmid et al. (US Pat. No. 5,895,808) has been overcome by amendment.
7. The rejection of claims 1-3 under 35 U.S.C. 102(b) as being anticipated by Inata et al. (US Pat. No. 5,223,335) has been overcome by amendment.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-3 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Brennan et al. (US Pat. No. 6,011,111).

Regarding claims 1-3 and 17, Brennan et al. disclose: **(I)** a method of manufacturing fiber-reinforced thermoplastics (Abstract), comprising:

(a) a mixing step for mixing an uncured thermosetting resin with reinforcing fibers to obtain a mixture (column 1, lines 48-52; column 8, lines 8-26); and

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(b) a reaction step for forming a thermoplastics by causing a polymerization reaction of the thermosetting resin in the mixture so that the thermosetting resin polymerizes wherein said uncured thermosetting resin comprises a first reactive compound and a second reactive compound (column 1, lines 48-52; column 8, lines 8-26), and said polymerization reaction is a polyaddition reaction between said first reactive compound and said second reactive compound (column 5, line 59 through column 6, line 3), and wherein said first reactive compound is a bifunctional compound having two epoxy groups (column 6, lines 4-21), and said second reactive compound is a bifunctional *phenolic* compound having two *hydroxyl* groups (column 6, lines 22-64);

(2) wherein said reinforcing fibers constitute a reinforcing fiber knitted web (column 1, line 62 through column 2, line 38, *particularly column 2, line 10*);

(3) wherein said reinforcing fibers are glass fibers (column 1, line 62 through column 2, line 38, *particularly column 2, lines 30-35*); and

(17) a fiber-reinforced thermoplastics, manufactured according to the method described in any of claim 1 (Abstract; column 1, lines 45-52; column 8, lines 8-26).

### ***Claim Rejections - 35 USC § 102/103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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11. Claims 4 and 5 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Brennan et al. (US Pat. No. 6,011,111).

Regarding claims 4 and 5, the teachings of Brennan et al. are as set forth above and incorporated herein. Brennan et al. satisfy all of the instantly claimed process limitations, including the material/chemical limitations of the starting materials and final product. They fail to explicitly disclose the following properties of the final product:

- (4) wherein, in the thermoplastics obtained in the reaction step, the softening point at which the storage modulus (Pa) is 1/10 of the storage modulus (Pa) at 306 K is between 310-450K, and at a temperature equal to or above the softening point, the storage modulus (Pa) is 1/100 of the storage modulus (Pa) at 300 K or less; and
- (5) wherein, in the thermoplastics obtained in the reaction step, the value of  $(E1-E2)/(T2-T1)$  when the storage moduli (Pa) at temperatures (K) T1 and T2 ( $T1 < T2$ ) below 450K are respectively E1 and E2, is  $1 \times 10^5 - 1 \times 10^{10}$  (Pa/K).

However, the skilled artisan would have expected the final product produced by the method of Brennan et al. to satisfy these property limitations because Brennan et al. satisfy all of the instantly claimed process limitations, including the material/chemical limitations of the starting materials and final product. Furthermore, it has been found that, “Products of identical chemical composition can not have mutually exclusive properties.” A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present – *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

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Therefore, the skilled artisan would have expected the final product produced by the method of Brennan et al. to satisfy the instantly claimed property limitations because Brennan et al. satisfy all of the instantly claimed process limitations, including the material/chemical limitations of the starting materials and final product.

### ***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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***Communication***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Feely whose telephone number is (571)272-1086. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Y. Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael J Feely/  
Primary Examiner, Art Unit 1796

May 14, 2010